

Amendments to the Specification:

Page 1, before ~~line 10~~, the paragraph beginning with "The present invention" insert the following title and paragraph:

--PRIORITY CLAIM

R1 This application claims domestic priority from Provisional Patent Application No. 60/236,391, Filed: September 29, 2003.

Please replace paragraph [0002] with the following rewritten paragraph:

A2 --In the areas of biological, chemical and pharmaceutical research, it is a common practice to utilize multi-well plates for storage and analytical purposes. Generally these plates, normally constructed of plastic materials, have a 3" x 5" footprint and contain from 12 to 1536 wells organized in rows. The individual well geometry of a multi-well plate can vary between round and square, with contained volumes from 1 microliter to 200 microliters. The plates are particularly suited to the use of laboratory automation for the handling, storage and assay of chemical and biological entities.

Please replace paragraph [0003] with the following rewritten paragraph:

B The multi-well plates, being liquid-filled and subject to storage, have a number of lidding options available to the user. The simplest form of cover is a molded plastic lid that loosely fits over the multi-well plate. For some researchers this may provide an adequate seal, but other researchers may require a more robust cover that provides for protection from both the ingress and egress of materials into the individual wells. The nature of ingress can include the absorbence of material such as water in the presence of DMSO (dimethyl sulfoxide), a preferred

storage solvent with a hygroscopic nature, and transfer of materials between wells. Egression can include the loss of volume due to evaporation or sublimation.

AB
Please replace paragraph [0005] with the following rewritten paragraph:

-- Yet another form of lidding is the use of a heat-sealed cover such as the Abgene Easy Peel Polypropylene Sealing Film (Catalog No. AB-0745). A heat-sealed cover is 3" x 5" and consists of a substrate material such as polypropylene film. Most of the multi-well plates used for storage are polypropylene. With the application of heat and pressure by means of an Abgene Combi Thermal Sealer, the heat-sealed cover can be bonded to the polypropylene multi-well plate on the plate's upper surface. This seal is in essence a molecular bond ~~cause~~ caused by the melting of the polypropylene of the respective entities. As such, the heat seal cover sets the standard for multi-well plate sealing in terms of ~~for~~ protection from both the ingress and egress of materials into the individual wells. It can be applied by manual and mechanical means such as the Abgene 1000, a semi-automatic applicator that uses roll stock of the Abgene Easy Peel Sealing Film. However, there is no mechanical device for the removal of heat-sealed covers. Heat-sealed covers cannot be reused. Each time a heat-sealed cover is attached to the plate there can be distortion on the standoffs of the individual wells, plus polypropylene remnants, affecting the quality of future seals on the same plate.

AK
Please replace paragraph [0010] with the following rewritten paragraph:

-- In the invention described herein, the source of the compressive force is the lid itself by means of a curvilinear section of the lid which can provide a spring force when deformed, thereby applying a normal force more or less equally to the planar surface of a gasket which in

~~turns~~ turn seals the individual wells of a multi-well plate. Perpendicular side walls of the lid, which can be displaced laterally, are used to attach the lid to the multi-well plate. In this manner, a multi-well plate can be accessed multiple times by displacing the side walls and removing the

cover.

Please replace paragraph [0012] with the following rewritten paragraph:

~~FIG. 1~~ is a perspective view of a preferred embodiment of the invention showing a multi-well plate cover assembly designated 1, a lid 3, side walls 7 of said lid 3, notched tabs 10 with locator holes 11 of said lid 3, stacking locators 13 of said lid 3, and the stacking lugs 17 of said lid 3.

Please replace paragraph [0011] with the following rewritten paragraph:

~~FIG. 2~~ is a perspective an end view of a portion of the multi-well plate cover assembly in 1 of Fig. 1 designated by Roman numeral II in Fig. 1, showing the lid 3 of said multi-well plate cover assembly 1 and an uncompressed gasket 23 disposed on the underside of said lid 3.

Please replace paragraph [0013] with the following rewritten paragraph:

~~FIG. 3~~ is a perspective view of said multi-well plate cover 1 of Fig. 1 positioned over a multi-well plate 5 (shown in dashed line), with the side walls 7 extended in preparation for attachment to said multi-well plate 5.

Please replace paragraph [0014] with the following rewritten paragraph:

~~FIG. 4~~ is a perspective view of the said multi-well plate cover 1 of Fig. 1 attached to a

multi-well plate 5.--

Please replace paragraph [0015] with the following rewritten paragraph:

Q9 --FIG. 5 is an end view of said multi-well plate cover 1, showing the a curvilinear spring section 19 of the lid 3, the side walls 7 of said lid 3, the stacking lugs 17 of said lid 3, the notched tabs 12 with locator holes 11 of said lid, the multi-well plate holders 15 of said lid 3 and the uncompressed gasket 23.

Please replace paragraph [0016] with the following rewritten paragraph:

Q10 --FIG. 6 is a view similar to FIG. 5 in which the side walls 7 are laterally displaced outward.

Please replace paragraph [0017] with the following rewritten paragraph:

Q11 --FIG. 7 is a view similar to FIG. 6, in which the multi-well plate cover assembly 1 is pressed against a multi-well plate 5 to ~~apply pressure to the compressed~~ compress gasket 23 while the side walls 7 remain laterally displaced.

Please replace paragraph [0018] with the following rewritten paragraph:

Q12 --FIG. 8 is a view similar to FIG. 7, in which the multi-well plate cover assembly 1 is against abuts and extends over a multi-well plate 5 to ~~apply pressure to the compressed~~ compress gasket 23. Side walls 7 ~~constrain the~~ secure multi-well plate cover 1 to multi-well plate 5 by means of multi-well plate holders 15.

Please replace paragraph [0019] with the following rewritten paragraph:

Q13
--FIG. 9 is a perspective view showing means which could be used to perform the mechanical actions in attaching multi-well plate cover 1 to a multi-well plate 5. Means 31 is shown for holding multi-well plate 5 during covering and uncovering; means 29 is shown for vertical movement of multi-well plate cover assembly 1 and compression of ~~curvilinear spring~~ section of multi-well plate cover 1; means 21 is shown for laterally displacing side walls 7; and means 27 is shown for gripping the multi-well plate cover 1.

Please replace paragraph [0020] with the following rewritten paragraph:

Q14
--FIG. 10 is a view similar to FIG. 9 showing means 21 laterally displacing side walls 7 of the lid 3 of the multi-well plate cover 1.

Please replace paragraph [0021] with the following rewritten paragraph:

Q15
--FIG. 11 is a view similar to FIG. 10 showing means 29 vertically placing the multi-well plate cover 1 on the multi-well plate 5 held by the means 31, while means 21 maintains the side walls 7 in a laterally displaced position.

Please replace paragraph [0022] with the following rewritten paragraph:

Q16
--FIG. 12 is a view similar to FIG. 11 showing means 21 releasing side walls 7 of the lid 3 of the multi-well plate cover 1, thereby securing said multi-well plate cover 1 to the multi-well plate 5.

Please replace paragraph [0023] with the following rewritten paragraph:

Q17 ~~FIG. 13~~ is a view similar to FIG. 12 showing means 29 vertically moving the multi-well plate cover 1 attached to the multi-well plate 5.

Please replace paragraph [0024] with the following rewritten paragraph:

Q18 ~~FIG. 14~~ is a perspective view of several multi-well plate covers 1 in a stacked orientation utilizing stacking lugs 17 and stacking locators 13.

Please replace paragraph [0025] with the following rewritten paragraph:

Q19 ~~FIG. 15~~ is a perspective view of several multi-well plate covers 1 and multi-well plates 5 in a stacked orientation utilizing stacking lugs 17 and stacking locators 13.

Please replace paragraph [0026] with the following rewritten paragraph:

Q20 ~~Referring now more particularly to the drawings, an assembly a multi-well plate cover~~ generally designated 1 in FIG. 1 comprises a one-piece metal lid 3 which is fabricated by conventional metal fabrication techniques employing the cutting, stamping and/or bending of sheet metal. Suitable metals include steel, spring steel, stainless steel and stainless spring steel, preferably having a thickness between about 0.015" and 0.024". The metallic design provides a high degree of chemical resistance, especially to dimethyl sulfoxide, the solvent most commonly used in multi-well plate storage. Included as part of the lid 3 are the side walls 7, integral to and formed at approximately 90 degrees to the top surface of said lid 3; the notched tabs with locator holes 11 integral with and extending from said lid 3; the stacking locators 13; and the stacking locator lugs 17. FIG. 2 shows a planar, uncompressed gasket 23 disposed on the convex side of the a curvilinear section 19 of lid 3, covering said the surface thereof in sufficient area to fully

engage the upper surface of a multi-well plate. ~~The gasket~~ Gasket 23 is preferably made from a low-durometer (Shore ISA or less) thermoplastic polymer or elastomer with a thickness of approximately 3/32" or 0.100". ~~The gasket~~ Gasket 23 is manufactured using standard injection molding or extrusion technology, and is preferable affixed by an adhesive to the bottom surface of the lid 3. A preferred gasket material is Synprene 5A manufactured by Polyone.

Please replace paragraph [0027] with the following rewritten paragraph:

~~FIG. 3 shows the assembly~~ multi-well plate cover 1, with the side wall 7 laterally displaced in preparation ~~in~~ for attachment to a multi-well plate 5. The lateral displacement of the side walls 7 is accomplished by mechanical means which is not shown in **FIG. 3** for illustrative purposes, but ~~said means~~ is shown in ~~succeeding figures~~ FIGS. 10-12. Similarly, the means for gripping the multi-well plate cover assembly 1 and for placing ~~said~~ multi-well plate cover 1 on the multi-well plate 5 are not shown in **FIG. 3** but ~~said means~~ are shown in ~~succeeding figures~~ FIGS. 9-13. **FIG. 4** shows the multi-well plate cover 1 attached to a multi-well plate 5 (shown in dashed line) in the normal storage mode.

Please replace paragraph [0028] with the following rewritten paragraph:

~~FIG. 5 is an end view of the multi-well plate cover 1 and serves to illustrate the spring nature of said~~ multi-well plate cover 1. **FIG. 6** is also an end view of the multi-well plate cover 1 and depicts the displacement of the side walls 7 of ~~said~~ multi-well plate cover 1 in preparation for attachment to a multi-well plate (not shown in FIG. 6). **FIG. 7** shows a continuation of the process of attaching the multi-well plate cover 1 to a multi-well plate 5 (in phantom) in which ~~said~~ multi-well plate cover 1 is vertically pressed in the direction shown by arrows 18 onto ~~said~~

Q22 multi-well plate 5, causing the compression of the uncompressed gasket 23 onto the superior upper surface of said multi-well plate 5 while the side walls 7 are outwardly extended. FIG. 8 shows a continuation of the process of attaching the multi-well plate cover 1 to a multi-well plate 5 in which said multi-well plate cover 1 having been placed in contact with the superior upper surface of said multi-well plate 5 has the side walls 7 released into their normal position in which multi-well plate holders 15 engage the a skirt 20 of the multi-well plate enabling the normal 5 by moving in the direction of arrows 22. The engagement of multi-well plate holders 15 with skirt 20 exerts a downward force of on the ends of the curvilinear section 19 to maintain exert a compressive force on the compressed gasket 23.

Please replace paragraph [0029] with the following rewritten paragraph:

Q23 FIG. 9 through FIG. 13 show how a mechanical system such as an automated plate server would function with said multi-well plate cover 1. In FIG. 9, a multi-well plate 5 is shown held by means 31 in preparation for attachment of multi-well plate cover 1 attachment. Means 21 is shown for laterally displacing side walls 7 in the direction shown by arrow 24, and means 27 is shown for gripping the multi-well plate cover 1. Means 29 provides for the positioning of the multi-well plate cover assembly 1 in the direction shown by arrow 26. FIG. 10 shows means 21 laterally displacing side walls 7 in the direction shown by arrow 28 in preparation for attachment of multi-well plate cover 1 attachment. Continuing with the sequence, FIG. 11 shows the multi-well plate cover 1 placed on the upper surface of multi-well plate 5. This action also serves to compress the uncompressed gasket 23 shown in FIG. 6 to produce the compressed gasket 23 shown in FIG. 7. In FIG. 12, means 21 is shown releasing side walls 7 so the multi-well plate holders 15, as FIG. 8, can engage and secure skirt 20 of multi-well plate 5.

FIG. 13, completing the sequence, shows ~~the~~ multi-well plate cover 1 attached to ~~the~~ multi-well plate 5 being moved by means 29. In FIG. 14, a stack of ~~said~~ multi-well plate covers 1 is shown arranged vertically. The interaction of the stacking locators 13 and stacking lugs 17 of adjacent multi-well plate cover 1 provides stability and geometric alignment of the stack. Because ~~said~~ multi-well plate covers 1 are normally used in automation based systems, a geometrically constrained stack is important to the pick and place robotic manipulation.

Please replace paragraph [0030] with the following rewritten paragraph:

~~In FIG. 15, a stack of said multi-well plate covers 1 attached to multi-well plates 9 5 is shown arranged vertically. The interaction of the stacking locators 13 and stacking lugs 17 of adjacent multi-well plate covers 1 provides stability and geometric alignment of the stack. The covered multi-well plate 5 is normally stored in storage units that are robotic material handling systems. Geometrically constrained stacks are important to the pick and place robotic manipulation.~~